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of nutrition, are transferred to the vegetable kingdom. The greatest drafts are upon the group of Flagellata, which are so often provided with chromatophores. He does not take the Radiolaria, however, with their 'yellow cells,' probably for the reason that they are symbiotic forms. This will probably be the sticking point in such a classification, for even if the dividing principle be admitted, the difficulty will ever be to decide, in these low forms, what is true chlorophyl formation and what symbiosis. The discoveries of Famintzin and Entz show that in many of the lower forms the presence of chlorophyl is due to minute plant cells which live independently of the animals with which they are associated. Before the classification can be complete it must be determined for each form whether the chlorophyl is a symbiotic plant or a natural product.

GARY N. CALKINS.

GEOLOGY.

Kansas River Section of the Permo-Carboniferous and Permian Rocks of Kansas. CHARLES S. PROSSER. Bulletin Geol. Soc. America, Vol. 6, pp. 29-54. 1894.

In the above paper Professor Prosser considers the historic section of the Upper Paleozoic rocks as exposed along the upper course of the Kansas River. As is well known, the early geologists of the State engaged in a most animated controversy over the correlation of the geological formations of this region. Although the investigations of Meek, Hayden, Hawn and Swallow began more than thirty-five years ago and were vigorously conducted for a number of years, still the subject was not settled, and many of the points at issue between the disputants are still open for decision.

The author describes various typical geological sections as exposed in the steep bluffs of the Kansas river and its tributaries, giving the distinctive geological characters and fossils of the various divi-

sions. In connection with this description, there is a complete review of the previous geological work, followed by a chart of tabulated sections, on which the correlation of the early geologists is indicated.

Possibly the most interesting fact in the paper to a geologist familiar with the region, is the statement that the Cottonwood and Manhattan limestones are the same. This limestone, which is the most valuable stone in the State for construction, has been extensively used, and the author states that he has traced it across the country from Cottonwood Falls, on the Cottonwood River, to Manhattan, on the Kansas River. Another interesting fact in reference to the stratigraphical geology is the correlation of the buff, magnesian limestones near Fort Riley with those of Florence, in the Cottonwood Valley.

In conclusion, it is stated that this is only a preliminary paper and that the writer has in hand the preparation of a report in which a full description of the formations of Central Kansas will be given, with the distribution of their fossils and their general correlation.

NOTES AND NEWS.

FORESTRY AND ECONOMIC BOTANY.

THE steady increase of interest in forestry matters, so desirable and essential, has recently become evident in many ways, especially in the Eastern States. New York, Pennsylvania and New Jersey have taken long strides in the right direction in the shape of much needed legislation; and the establishment of forestry journals for the promulgation of knowledge respecting the nature and value of our native trees is a step that will receive commendation from thoughtful people everywhere. The South Jersey Woodmen's Association has shown wisdom in securing an official organ through which they may increase the scope of their influence. The first number of 'The New

'Jersey Forester' (May's Landing, New Jersey), contains valuable and interesting articles from the pens of well known scientists. The editor, Mr. John Gifford, Special Forestry Commissioner of New Jersey, reviews recent forestry legislation in that State, and discusses the causes and effects of forest fires in the southern interior of New Jersey; B. E. Fernow, Chief of the Forestry Division, Washington, D. C., presents the extent and aims of the forestry movement in the United States. An illustrated article on 'The Periodical Cicada, or Seventeen Year Locust,' by Professor John B. Smith, State Entomologist, New Brunswick, N. J., is followed by interesting contributions on 'The Evil Effects of Drifting Sands Along the Jersey Coast,' by Professor Charles S. Dolley, President of the American Association for the Advancement of Education, and on 'The Colony of Russian Refugees at Woodbine,' by H. L. Sabsovich, Superintendent of the Baron Hirsch Colony. The example set by this publication, both in its purpose and the high standard presented in this first number is one which may well be followed by State forestry associations throughout the country.

ALL teachers of botany and lovers of trees, especially those interested in forestry agitation, will welcome the excellent charts issued by Miss Lewis. The execution of the drawings of leaves and acorns in Chart No. 1 is all that could be desired, accurate and finished in every detail, as might be expected of anything coming from the pencil of one so expert, and so widely and favorably known as a thorough botanist and skilled artist. Miss Lewis, a member of the Academy of Natural Science of Philadelphia and a teacher of long experience, has done much to promote a love for natural history and to encourage its being taught in our schools, and she is to be congratulated upon her latest contribution to this good work. Teachers have only to see the charts

to insure the introduction of the same into the class-room.

STILES AND HASALL announce in a recent number of the Veterinary Magazine the discovery of a new species of intestinal fluke (*Distoma tricolor*) in the Cotton-tail rabbit (*Lepus sylvaticus*, *Bachman*) and in the Northern hare (*L. americanus* *Erxleben*).

A NEW and serious enemy to pear trees has recently been discovered in New Jersey by Dr. John B. Smith. It is a flat-headed borer (*Agilus Sinnatus* Ol.), a species common in Europe, and was imported into a nursery in Union county, N. J., not more than ten years ago. It is already widespread in that State, probably occurring also in New York. The last number of 'Insect Life' (Vol. VII., No. 3) contains an illustrated article on this pest.

M. G. V. BERTHOUMIEU, in the first number of the current volume of *Annales de la Société entomologique de France*, has begun the publication of what bids fair to be a very complete monograph of the *Ichneumonidæ* of Europe.

E. A. SMYTH, JR., of the Virginia Agricultural College, has recently examined the stomach contents of a large number of hawks and owls, with the result that he is able to show that the good offices of many of these birds by far overbalance any occasional instance of ravages upon the poultry yard. The 'trim and dauntless little sparrow hawk' is found to be a very active enemy of caterpillars, grasshoppers and other insects, as well as of the ubiquitous English sparrow, and to deserve protection at the hands of all farmers.

THE Cornell University Agricultural Experiment Station Bulletins for December, 1894 (Nos. 78, 80), just issued, treat respectively of 'The Quince in Western New York,' a subject of considerable interest, inasmuch as quinces are more extensively grown in that district than anywhere else in North

America; and of 'The Variety and Leaf-Blight of the Strawberry.' The publications of the Cornell Station excel in beauty of illustration much of the material issued by similar institutions.

ENTOMOLOGY.

IN a recent and excellently illustrated memoir (*Musæum Dzeduszyckianum*, iv-Lemberg) on the insect fauna of the petroleum beds of Boroslow, Galicia, Lemnicki describes no less than seventy-six coleoptera, of which nineteen are regarded as identical with living European insects, while the others find their nearest allies in boreal Europe, Asia and America. As only four species are identical with those found by Flach at Hösbach, Bavaria, in beds looked upon as Lower Pleistocene by Flach, and since the Hösbach coleoptera as a whole show far less boreal affinities than those of Galicia, Lemnicki thinks the Hösbach fauna must be considered Middle Pleistocene and the Galician Lower Pleistocene.

RUSSIAN SCIENCE NOTES.

THE Jubilee-book issued by the University of Kasan in commemoration of the Lobachévsky centenary has already reached a very large circulation. His compatriots are pushing the non-Euclidean geometry.

N. P. Sokolov has just issued at Kiev (University Press) a pamphlet of 32 pages (large 8vo) entitled 'The significance of the researches of N. I. Lobachévsky in geometry.'

Volume VI. of the second series of the Bulletin of the physico-mathematical society of Kasan, pp. 18-41, contains an interesting contribution by W. Sichstel on the fundamental theorems of spherical geometry.

Two books on America have lately been published in Russia. One is by Witkowsky, a scientist sent by the Russian government to study geodetic work in the United States. The other is published by a Russian, now

resident in Los Angeles, who has been more than ten years in America, and has here amassed a fortune. He is a fervid republican, and writes under the *nom-de-plume* Tverski.

The well-known and justly admired writer Korolenko, ranked by the Russians second only to Tolstoi of living authors, was during 1893 in America, and is about to issue his impressions of travel. This book, because of the high reputation of the author, is awaited with keen interest.

GEORGE BRUCE HALSTED.

THE COLD SPRING HARBOR LABORATORY.

THE A. A. A. S., at its Brooklyn meeting, made two appropriations to aid research in biological laboratories. One at Wood's Holl, of which notice was given in our last number, and one at the Cold Spring Harbor Laboratory; concerning which the following is the wording of the vote:

"That \$100 be granted to Franklin W. Hooper in behalf of the Biological Laboratory at Cold Spring Harbor, to be devoted to defraying the expense of original research; the nature of this to be approved by a committee selected by the Council."

The committee appointed consists of the Vice-Presidents-elect of Section F. and G., viz.: Prof. D. S. Jordan and Prof. J. S. Arthur.

Applications are to be sent to Prof. F. W. Hooper, Brooklyn Institute of Arts and Sciences, or to Prof. H. W. Conn, Wesleyan University, Middletown, Conn.

WASHINGTON LECTURES.

THE Series of Saturday Lectures, complimentary to the citizens of Washington, will be continued during the season of 1895, under the joint auspices of the Anthropological and Geological Societies. Two courses have been provided for, each so arranged as to give a logical introduction to the science treated.

The addresses will be delivered in the Lecture Hall of U. S. National Museum, 4:20 to 5:30 P. M., on the dates specified. Citizens of Washington and their friends are cordially invited to attend.

The anthropologic course will comprise: (1) an exposition of the elements of anthropology by the President of the Anthropological Society, and (2) somewhat more detailed expositions of the different branches of the science of man by representatives of the four sections of the Society. The geologic course, which is provisionally arranged, will comprise an exposition of the growth of North America from the most ancient geologic period to the present time, illustrated by maps showing various stages in continental development.

ANTHROPOLOGY.

February 23.—*What is the Science of Demology?* MAJOR J. W. POWELL.

March 2.—*Human Growth*: DR. FRANZ BOAS.

March 9.—*The Founding of Sociology*: Vice-President LESTER F. WARD.

March 16.—*The Progress of the Scientific Method*: Vice-President W J McGEE.

March 23.—*The Growth of Arts*: Vice-President FRANK HAMILTON CUSHING.

GEOLOGY.

March 30.—*The Continent in Algonkian Time*: PROF. C. R. VAN HISE.

April 6.—*The Continent in Cambrian and Silurian Time*: HON. CHARLES D. WALKOTT.

April 13.—*The Continent in Devonian Time*: MARIUS R. CAMPBELL.

April 20.—*The Continent in Cretaceous and Tertiary Time*: G. K. GILBERT.

April 27.—*The Continent in Glacial and Recent Time*: PROF. WILLIAM B. CLARK.

A PROPOSED NATIONAL UNIVERSITY.

REPRESENTATIVE HAINER, of Nebraska, has introduced a bill to establish the University of America, in which each State, Ter-

ritory and Congressional District shall be entitled to an equal proportionate number of students, chosen by means of open competitive examinations. Instruction in all the branches of all departments of knowledge is to be given, and facilities furnished for scientific and literary research and investigation. The government of the University is to be vested in a board of twenty regents.—*Evening Post*.

GENERAL.

JOHN MURRAY has published the report of the Oxford meeting of the British Association edited by the Assistant Secretary, Mr. G. Griffith. In addition to the address of the President, Lord Salisbury, and those of the Vice-Presidents of the several sections, there are printed in full eight papers by special invitation of the general committee, among them Professor Langley's *On Recent Researches in the Infra Red Spectrum*. The other papers are given in abstract or by title only. Four hundred pages, half the volume, are taken up by the reports of committees and investigators, previously appointed.

DR. HERMANN WEBER, a Fellow of the College of Physicians in London, gave last December £2,500 for the purpose of founding a prize to be given triennially for the best essay on tubercular consumption. The competition is open to writers in all countries.

THE Vienna Academy of Sciences has received by the will of Josef Treitel 800,000 florins to be used for the advancement of astronomy.

PROFESSOR WELDON is announced to discuss *Variation in Animals and Plants* at the second of the special meetings of the Royal Society.

M. GUIGNARD has been elected a member of the Section of Botany of the Paris Academy of Sciences, succeeding M. de Chartre.

DR. F. N. SCHMITZ, Professor of Botany in the University of Greifswald, died on January 28, at the age of 44.

THE University of Wisconsin has begun the publication of series of bulletins in Philology and Literature, in Science, in Engineering, and in Economics, Political Science and History. The numbers so far issued are: *On the Speed of the Liberation of Iodine in Mixed Solutions of Potassium Chlorate, Potassium Iodide and Hydrochloric Acid*, by Herman Schmidt. *Track*, by L. F. Loree. *Some Practical Hints in Dynamo Design*, by Gilbert Wilkes. *The Steel Construction of Buildings*, by C. T. Purdy. *The Evolution of a Switchboard*, by Arthur Vaughan Abbott. *The Geographical Distribution of the Vote of the Thirteen States on the Federal Constitution, 1787-8*, by Orin Grant Libby.

THE J. B. LIPPINCOTT Co. announce *Suggestions to Hospital and Asylum Visitors*, by Dr. John S. Billings and Dr. Henry M. Hurd, and *A Text-book of Chemistry*, intended for the use of pharmaceutical and medical students, by Professors Samuel P. Sadtler and Henry Trimble, of the Philadelphia College of Pharmacy.

GINN & Co. announce *The Religions of India*, by Edward Washburn Hopkins.

D. APPLETON & Co. announce *The Story of the Stars*, by G. F. Chambers, as the first volume in a new series of 'Useful Stories.' This series includes *The Story of the Earth*, by H. G. Seeley; *The Story of the Primitive Man*, by Edward Clodd; *The Story of the Solar System*, by G. F. Chambers. The same publishers announce a translation of Max Nordau's *Entartung*.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.

THE Section of Geology and Mineralogy, on February 18, listened to papers of which the following are abstracts: Heinrich Ries

described the geology and petrography of the 'Harrison Granite' of Westchester county, N. Y. This forms an elongated belt, principally in the town of Harrison, on Long Island Sound, and is in the midst of the mica schists, which Dr. F. J. H. Merrill regards and has recently mapped as metamorphosed representatives of the Hudson River stage. The granite contains both hornblende and biotite and is really a granite-diorite. It is all more or less gneissic, and shades from a coarsely laminated variety with many 'Augen' of feldspar, in the central portion, to decidedly schistose varieties at the border. Evidences of crushing and many curious inclusions in the feldspar are abundant.

In discussion, J. F. Kemp cited the many intrusive bosses of granite all along the north shore of the Sound from Stony Creek, Conn., to Niantic, R. I. The results of observations as yet unpublished, on those in Rhode Island, were given and a few notes on their mineralogy.

G. F. Kunz followed with a paper on the 'Minerals used for the Assyrian, Babylonian and Sassanian Cylinders, Seals, etc.,' which was illustrated by many specimens and lantern slides. An abstract of the paper, which will be printed in full in the Transactions of the Academy, is as follows:

The seals that date from 4000 B. C. to 2500 B. C. are cylinders, a form that is thought to have been suggested by the joint of a reed. Nearly all depict animals without other ornamentation. They were made of black or green serpentine, conglomerate, diorite, and often of the central whorls of the large conchs from the Persian Gulf. From 2500 to 600 B. C. the cylindrical shape continues, but, in addition to the animals, from one to six rows of cuneiform characters appear. Various colored chalcedony, (especially a blue variety), brick red ferruginous quartz and red hematite are also used. Up to this time the carving was